

*Peter K. Sweeney*  
ENGINEERING PROGRAM MANAGER  
WORLD TRADE CENTER  
CHIEF STRUCTURAL ENGINEER

Engineering Department  
Design Division  
The World Trade Center  
Electrical/HVAC  
Upgrade Program

Title  
TOWER ONE AND TWO  
LOW VOLTAGE SUBSTATIONS  
CONSTRUCTION AND  
INSTALLATION  
STRUCTURAL

STRUCTURAL GENERAL NOTES,  
SECTIONS AND DETAILS

No. Date Revision Approved

This drawing subject to conditions in contract.  
All inventions, ideas, designs and methods  
herein are reserved to Port Authority and may not  
be used without its written consent.

Designed by *S. Yaden* Drawn by *J. S. RICHMOND* Checked by *J. L. N.*

Date: 5-1-95 Scale

Contract Number Drawing Number

WTC-802.071 S-7

# STRUCTURAL NOTES

- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION OR ORDERING OF PREFABRICATED MATERIALS. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY BETWEEN THE ACTUAL CONDITIONS AND THOSE SHOWN ON THE CONTRACT DRAWINGS.
- DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT NEW YORK CITY BUILDING CODE.
- BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIA. ASTM A-325P (SLIP CRITICAL) HIGH STRENGTH BOLTS, UNLESS OTHERWISE SHOWN OR NOTED. A MINIMUM OF 2 BOLTS OR EQUIVALENT WELDS SHALL BE USED FOR ALL CONNECTIONS.
- WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE AWS D1.1-94. ALL WELDS SHALL BE MADE WITH E-70 LOW HYDROGEN ELECTRODES. MINIMUM SIZE OF FILLET WELDS SHALL BE 1/4" UNLESS OTHERWISE SHOWN OR NOTED.
- SURFACE PREPARATION OF EXISTING BEAMS WHERE REPAIRING CONNECTIONS, SHALL BE WIRE BRUSHED AND THOROUGHLY CLEANED AS APPROVED BY THE ENGINEER. EXISTING SPRAY-ON FIREPROOFING REMOVED FOR CONNECTION SHALL BE RESTORED.
- STRUCTURAL STEEL SHALL HAVE SPRAY-ON TYPE FIREPROOFING FOR ADDITIONAL INFORMATION SEE ARCHITECTURAL DRAWINGS AND CONTRACT SPECIFICATION.
- STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE "B". ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM A36.
- ALL CONCRETE SHALL BE LIGHTWEIGHT CLASS "LB" CONCRETE (4,000 PSI).
- ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
- ALL GROUT SHALL BE NONSHRINK AND NONMETALLIC TYPE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 7 DAYS.
- CONTROLLED INSPECTIONS SHALL BE CONDUCTED FOR THE FOLLOWING CONSTRUCTION AND OPERATIONS IN ACCORDANCE WITH THE TABLES 10-1 AND 10-2 OF SUBCHAPTER 10 "STRUCTURAL WORK" OF NEW YORK CITY BUILDING CODE:
  - STEEL CONSTRUCTION
    - WELDING OF STRUCTURAL STEEL.
    - INSTALLATION AND TENSIONING OF HIGH-STRENGTH BOLTS.
  - CONCRETE CONSTRUCTION
    - MATERIAL CONFORMANCE TO ACT AND ASTM STANDARDS FOR STRENGTH, CEMENT, AGGREGATES, MIXING WATER, STEEL REINFORCEMENT, AND ADMIXTURES.
    - PLACING AND CURING OF ALL CONCRETE.
- PROVIDE 4" CONCRETE PADS FOR MECHANICAL UNITS AT LOCATIONS INDICATED ON THE MECHANICAL DRAWINGS.
- ALL MECHANICAL UNITS AT LOCATIONS INDICATED ON THE MECHANICAL DRAWINGS SHALL BE ANCHORED TO THE FLOOR. THE CONTRACTOR SHALL PREPARE AND SUBMIT ANCHORING DETAILS FOR THE ENGINEER'S APPROVAL. SAID DETAILS SHALL MAINTAIN THE INTEGRITY OF THE EPOXY OVERLAY FLOOR INSULATION, WATERPROOFING MEMBRANE AND THE FLOOR CONSTRUCTION.
- FOR LOCATION AND EXTENT OF EPOXY OVERLAY FLOOR INSULATION SEE ARCHITECTURAL DRAWINGS.

## TRANSFORMER BASE DETAIL

N.T.S.  
THE CONTRACTOR SHALL PROVIDE UP TO ADDITIONAL 1000 LB. OF MISCELLANEOUS STRUCTURAL STEEL FOR THE BASE OF EACH TRANSFORMER. AFTER VENDOR SHOP DRAWINGS OF CONTRACT NO. WTC-802.071 ARE APPROVED, THE ENGINEER WILL FURNISH TO THE CONTRACTOR SAID DRAWINGS.

SCALE IN FEET  
AND AS NOTED

